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ABSTRACT

A study was conducted at Mount San Antonio College (MSAC), California, to analyze patterns in credit course retention between fall 1986 and spring 1989. The study investigated the development of course prerequisites based on faculty perceptions of the skills necessary for success and minimal skill levels associated with success; student assessment and placement at MSAC since 1985; English and mathematics placement results since 1983-84; the influence of successful English course completion on student retention; and the effects of skill prerequisites on minority students. Study findings included the following: (1) the number of placement tests given to MSAC students increased from 13,223 in 1985-86 to 20,125 in 1988-89; (2) the largest number of tests were given in August and January; (3) placement test results in English and mathematics remained fairly stable between 1983-84 and 1988-89; and (4) after prerequisites became mandatory in 1987, grade point average and retention were higher for Black and Hispanic students in over 50% of their courses. (AYC)

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COURSE RETENTION ANALYSIS

Prepared by the

Mt. San Antonio College Office of Institutional Research

INSTITUTIONAL RESEARCH GRATEFULLY

ACKNOWLEDGES THE ASSISTANCE OF

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JULY 1989

INTRODUCTION

This is a working report prepared for Mt. San Antonio College faculty and staff to assist them in evaluating credit course retention from Fall 1986 through Spring 1989.

PART I--Graphically summarizes background data over a five year period on the:

- Development of course prerequisites.
- Assessment and Placement results.
- Affect of successful English course completion on student retention.
- Affect of course prerequisites in minority students.

PART II--A detailed five semester analysis of courses where prerequisites were made mandatory in the Fall of 1987. The analysis was prepared for each division and department and includes the number of students, course retention, GPA, and student ethnicity.

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For information on Part II, the detailed division/department analysis, please contact the Office of Institutional Research.

PART I

RESEARCH QUESTION ONE

How were course prerequisites developed at Mt. San Antonio College?

ANALYSIS SUMMARY

At Mt. San Antonio College, course prerequisite requirements were not suddenly put into place in the Fall 1987 semester. They were the result of a college-wide effort in previous years to phase in prerequisites for basic skills by division and department.

In Fall 1982, the MSAC Assessment Subcommittee asked all faculty department chairs and coordinators to define the essential, partly essential, or not essential reading, writing, mathematics, manual dexterity, and oral communication skills necessary to pass credit courses in their departments with a "C" grade or better. *Figure 1* and *Figure 2* illustrate the results of this survey. For 96 percent of the 532 courses reviewed, reading skills were considered as partly essential or essential. Ninety-two percent considered writing skills as partly essential or essential and 85 percent considered oral communication skills as partly essential or essential. Sixty-six percent considered math skills as partly essential or essential.

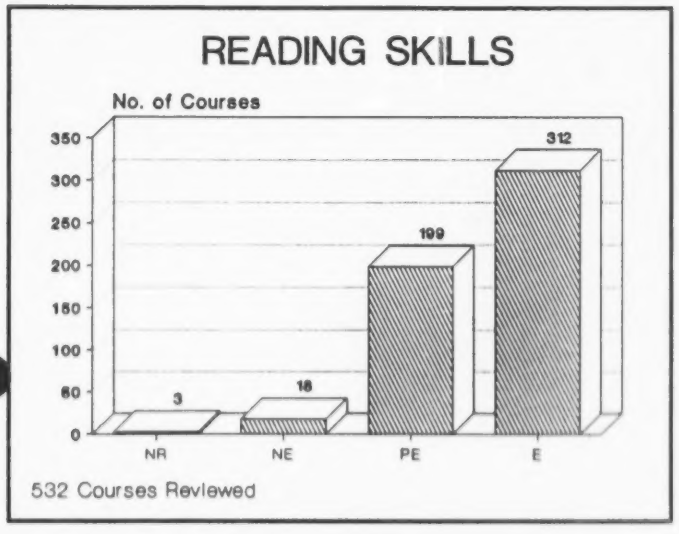
Prerequisites are continually being evaluated and are increasing or decreasing in all programs, especially prerequisites in the occupational areas. They evolved over time from careful analysis of curriculum content and the reading, writing, oral communication, mathematics, and manual dexterity skills essential to student success as determined by the teaching faculty.

English, mathematics, and chemistry have traditionally required assessment for student placement. Prior to Fall 1987, many courses had advisory and some had mandatory prerequisites in place requiring a student to have completed or be eligible for ENGL 68, ENGL 1A, or MATH 51. To be accepted as a candidate for certain programs, particularly in Health Sciences, combinations of basic skills and subject-matter prerequisites continued to be required.

(Figure 1)

FACULTY EVALUATION OF SKILLS NECESSARY FOR STUDENT SUCCESS

In Fall 1982, the MSAC Assessment Subcommittee asked all faculty, department chairs, and coordinators to define the essential, partly essential, or not essential reading, writing, mathematics, manual dexterity and oral communication skills necessary to pass credit courses in their departments with a "C" grade or better. The minimal reading and math grade levels of required course materials necessary for student success were also identified.

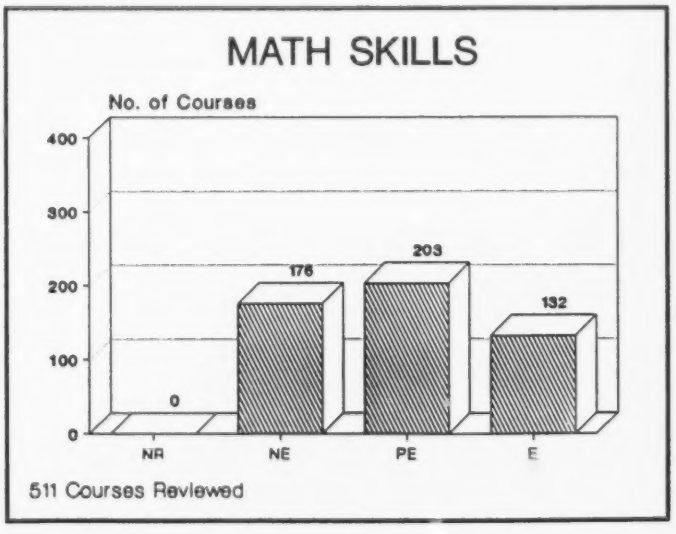


LEGEND:

E - Essential to Student Success
PE - Partly Essential
NE - Not Essential
NR - No Response

ASSESSMENT AND PLACEMENT SURVEY SUMMARY

Subject	Number of Courses Reviewed	Percent Deemed Partly Essential/Essential
Reading	532	96%
Writing	529	92%
Oral Comm.	518	85%
Math	511	66%
Manual Dexterity	535	63%
Minimal Grade Level Skills		**10th Grade Plus**
Reading	466	81%
Math	316	57%

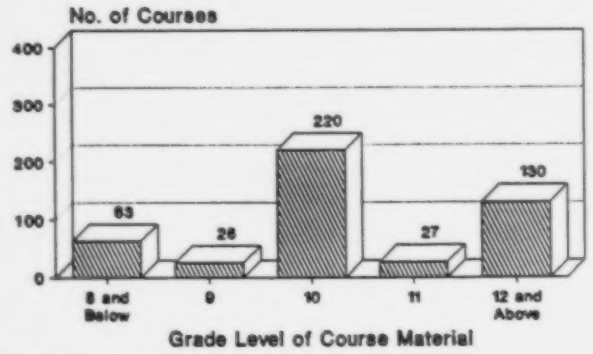


Data Source: MSAC Assessment Subcommittee Report on Faculty Assessment of Basic Skills, Donis Perrott, 1983.

(Figure 2)

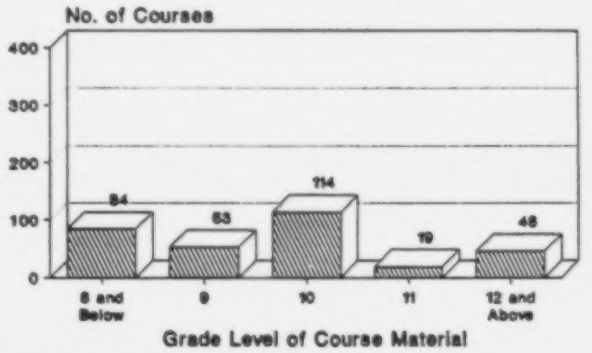
MINIMAL READING, MATH, WRITING, ORAL AND MANUAL DEXTERITY SKILLS DETERMINED BY FACULTY AS NECESSARY FOR STUDENT SUCCESS

MINIMAL READING SKILLS
For Student Success



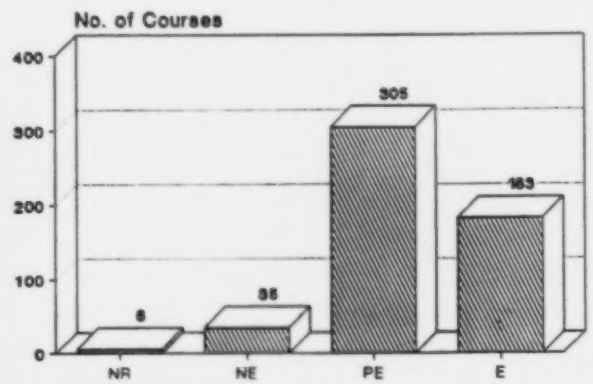
466 Courses Reviewed

MINIMAL MATH SKILLS
For Student Success



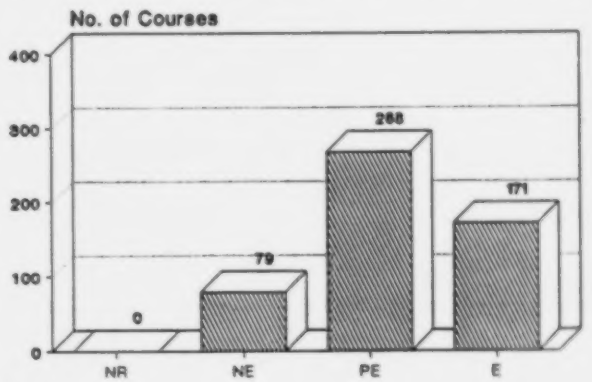
316 Courses Reviewed

WRITING SKILLS



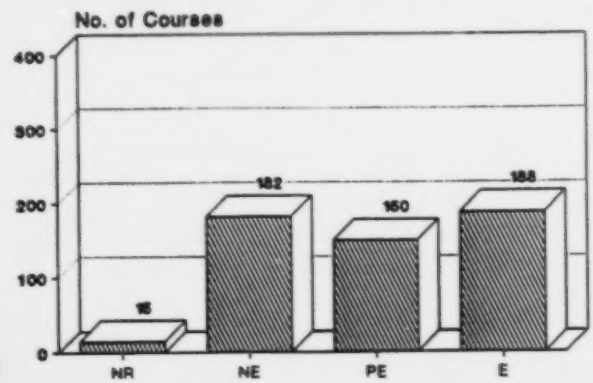
529 Courses Reviewed

ORAL COMMUNICATIONS SKILL



518 Courses Reviewed

MANUAL DEXTERITY SKILLS



535 Courses Reviewed

LEGEND:

E - Essential to Student Success
PE - Partly Essential
NE - Not Essential
NR - No Response

Data Source: MSAC Assessment Subcommittee Report on Faculty Assessment of Basic Skills, Donis Perrott, 1983.

RESEARCH QUESTION TWO

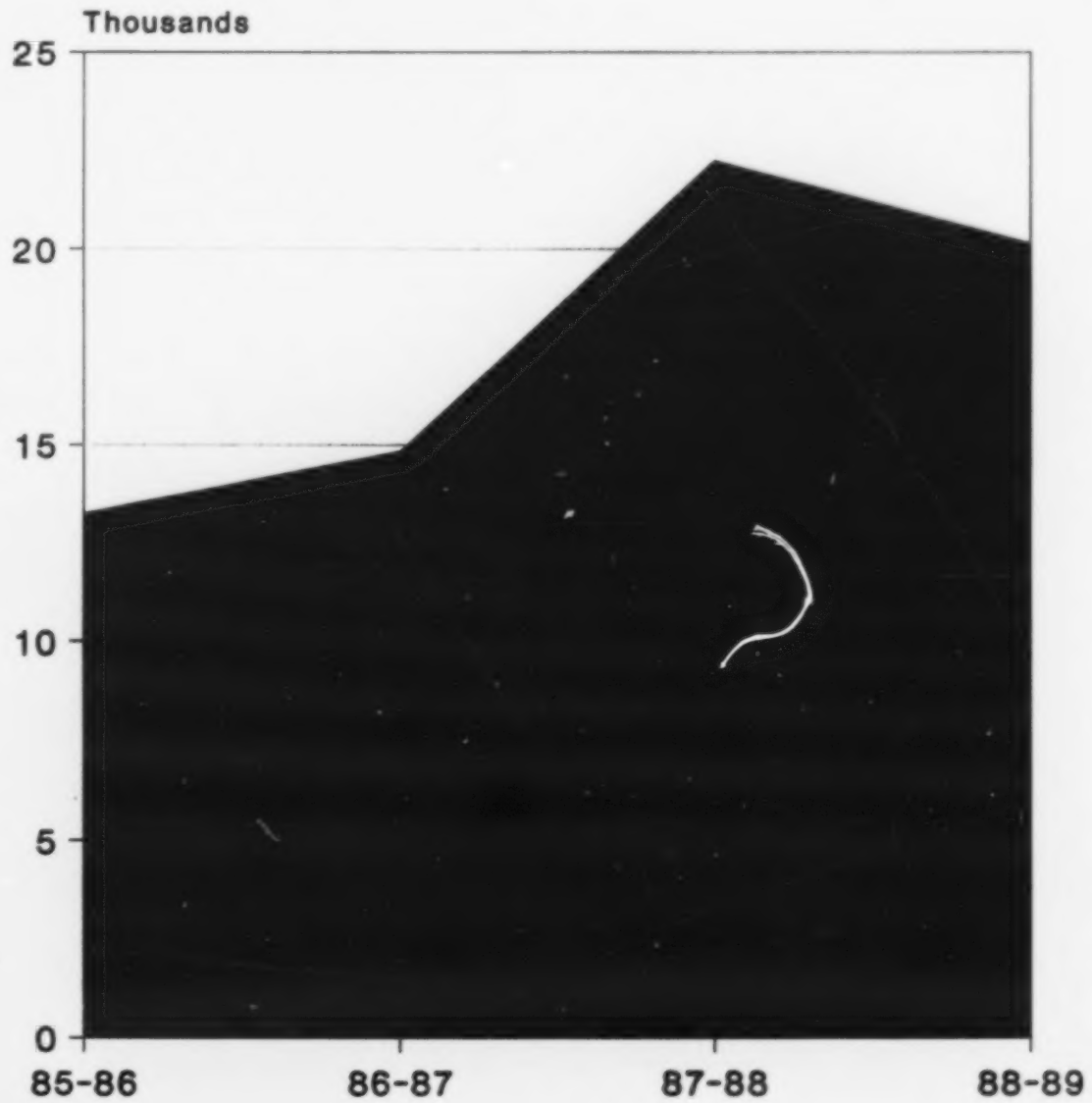
How many placement tests have been given since 1985?

ANALYSIS SUMMARY

Figure 3 and *Table 1* illustrate the substantial increase between 1985 and 1989 in the number of placement tests given by the Assessment Center. There was a 41 percent increase between 1985-86 and 1987-88. In addition to administering placement tests, the Assessment Center scores placement tests for the Learning Assistance Center, EOPS Special Programs, the Pomona Educational Service Center, and Handicapped Student Services. *Figure 4* illustrates the January through December student test taking pattern from 1985 through 1989. Highest number of tests are given in August followed by January, June, September, and May.

(Figure 3)

Assessment Center
Placement Tests Administered
1985-86 to 1988-89



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(Table 1)

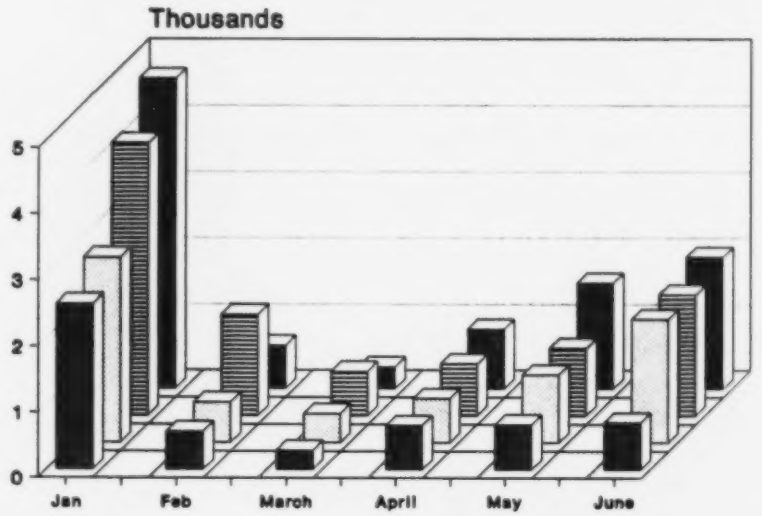
ASSESSMENT CENTER
PLACEMENT TESTS ADMINISTERED

	1985-86	1986-87	1987-88	1988-89
July	2,013	1,189	1,594	1,172
August	3,766	4,276	5,420	6,120
September	922	1,048	3,908	1,717
October	270	217	323	302
November	289	306	356	352
December	478	330	625	308
January	2,515	2,803	4,124	4,684
February	586	619	1,532	653
March	296	444	672	328
April	678	677	791	903
May	689	1,037	1,025	1,595
June	721	1,880	1,834	1,991
TOTAL	**13,223**	**14,826**	**22,204**	**20,125**

In addition to the placement tests administered, the Assessment Center scores placement tests for the Learning Assistance Center, EOPS Special Programs, the Pomona Educational Service Center, and Handicapped Student Services.

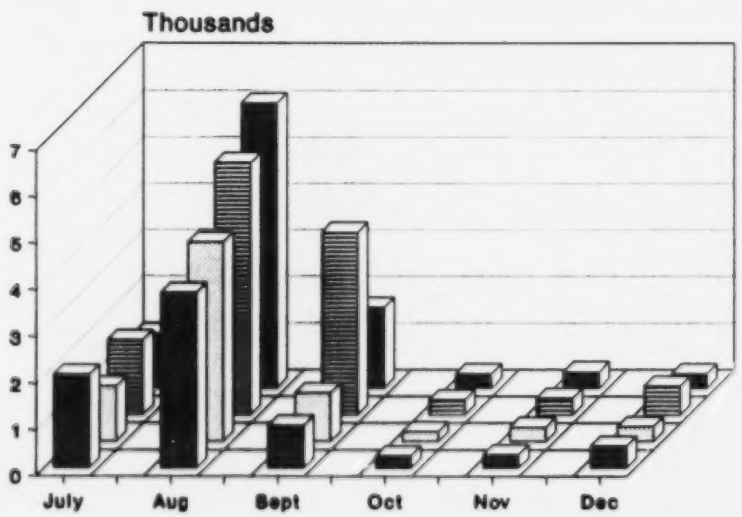
(Figure 4)

Assessment Center
Placement Tests Administered
1985-86 to 1988-89



January through June

1985-86 1986-87 1987-88 1988-89



July through December

Office of Institutional Research

(HG3/ac1-12./7-89)

RESEARCH QUESTION THREE

What have student English and mathematics placement results been since 1983-84?

ANALYSIS SUMMARY

Figure 5 illustrates the Asset English placement results from 1983-84 through 1988-89. It shows that while the number of students tested has increased dramatically, the percent of students eligible for LERN 76, ENGL 67, ENGL 68, and ENGL 1A has remained almost the same. *Table 2* shows the 69 percent increase in the number of students taking the Asset test between 1983-84 and 1988-89.

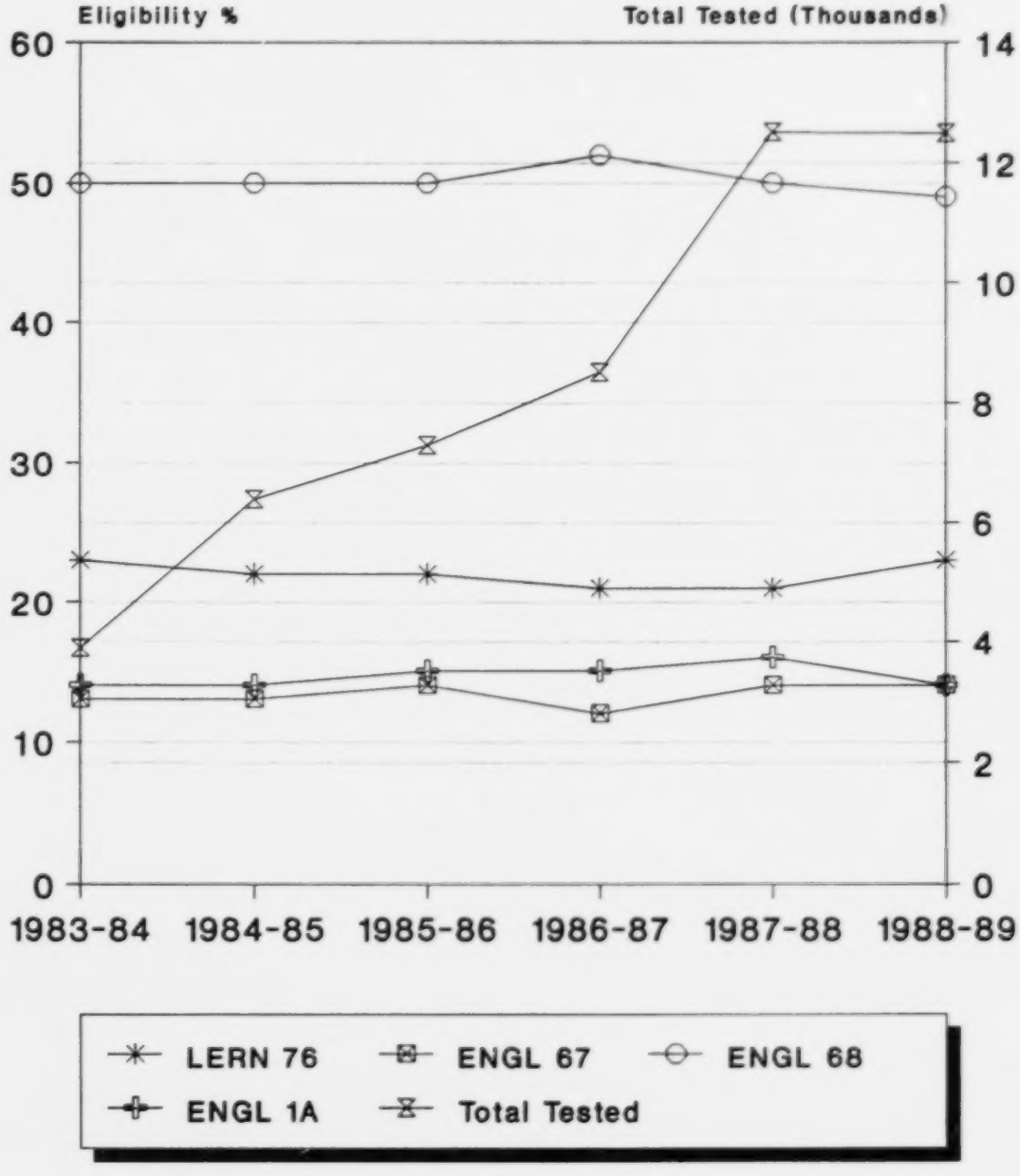
Table 3 summarizes the Asset mathematics placement results from 1983-84 through 1988-89. The majority of students, a total of 34,623, took the Asset numerical test. Over the last six years, an average of 50 percent of the students taking this test qualified for MATH 51, 38 percent qualified for MATH 50, and 12 percent qualified for LERN 86. In March 1988, the Math Diagnostic Test was adopted as the college math placement test. Three Math Diagnostic Tests were given to a total of 6,022 students in 1987-88 and 13,910 in 1988-89 for a total of 19,932. The majority of the students took the Algebra Readiness Test. In the two years an average 53 percent of the students who took this test qualified for MATH 51, 30 percent qualified for MATH 50, and 18 percent qualified for LERN 86.

Figure 6 illustrates the placement results for students who took the Math Diagnostic Tests for Algebra Readiness, Elementary Algebra, and Intermediate Algebra in 1987-88 and in 1988-89.

(Figure 5)

Asset English Placement Results

Total Tested Increases While Eligibility Remains Consistent



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(Table 2)

ASSET ENGLISH PLACEMENT RESULTS

	1983-84	%	1984-85	%	1985-86	%	1986-87	%
Total Tested	3,891		6,384		7,290		8,497	
Eligibility								
LERN 76	892	23%	1,418	22%	1,568	22%	1,759	21%
ENGL 67	509	13%	834	13%	1,001	14%	1,037	12%
ENGL 68	1,934	50%	3,215	50%	3,637	50%	4,385	52%
ENGL 1A	556	14%	917	14%	1,084	15%	1,316	15%

	1987-88	%	1988-89	%	TOTAL	%
Total Tested	12,514		12,495		51,071	
Eligibility						
LERN 76	2,557	21%	2,823	23%	11,017	22%
ENGL 67	1,704	14%	1,726	14%	6,811	13%
ENGL 68	6,248	50%	6,164	49%	25,583	50%
ENGL 1A	2,005	16%	1,782	14%	7,660	15%

(Table 3)

ASSET MATHEMATICS PLACEMENT RESULTS

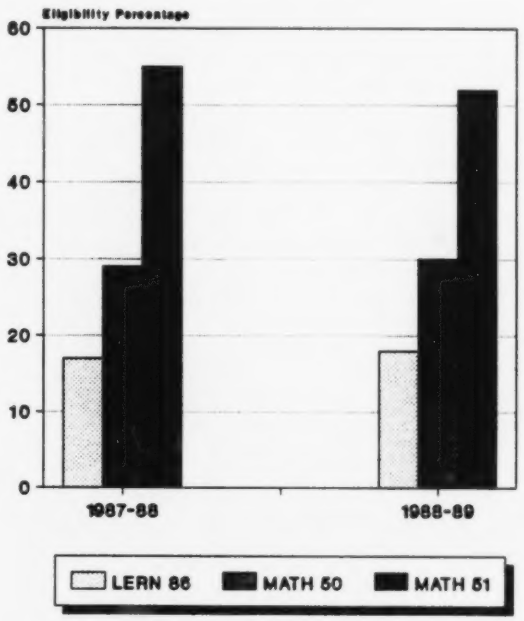
	1983-84	%	1984-85	%	1985-86	%	1986-87	%
Numerical								
Total Tested	4,124		6,208		7,079		8,653	
Eligibility								
LERN 86	589	14%	708	11%	810	11%	905	10%
MATH 50	1,399	34%	2,311	37%	2,677	38%	3,324	38%
MATH 51	2,136	52%	3,189	51%	3,592	51%	4,424	51%
Elementary Algebra								
Total Tested	806		1,006		787		950	
Eligibility								
MATH 50	279	35%	340	34%	225	29%	288	30%
MATH 51	269	33%	327	32%	265	34%	319	34%
MATH D/52	258	32%	339	34%	297	38%	343	36%
Intermediate Algebra								
Total Tested	405		562		547		667	
Eligibility								
Elem Alg Test	77	19%	93	17%	115	21%	142	21%
Review MATH D	49	12%	75	13%	74	14%	109	16%
MATH 1/C	279	69%	394	70%	358	65%	416	62%

	1987-88	%	1988-89	%		TOTAL	%
Numerical							
Total Tested	7,991		568			34,623	
Eligibility							
LERN 86	1,020	13%	76	13%		4,108	12%
MATH 50	3,267	41%	271	48%		13,249	38%
MATH 51	3,704	46%	221	39%		17,266	50%
Elementary Algebra							
Total Tested	558					4,107	
Eligibility							
MATH 50	147	26%				1,279	31%
MATH 51	87	16%				1,267	31%
MATH D/52	324	58%				1,561	38%
Intermediate Algebra							
Total Tested	487					2,668	
Eligibility							
Elem Alg Test	118	24%				545	20%
Review MATH D	60	12%				367	14%
MATH 1/C	309	63%				1,756	66%

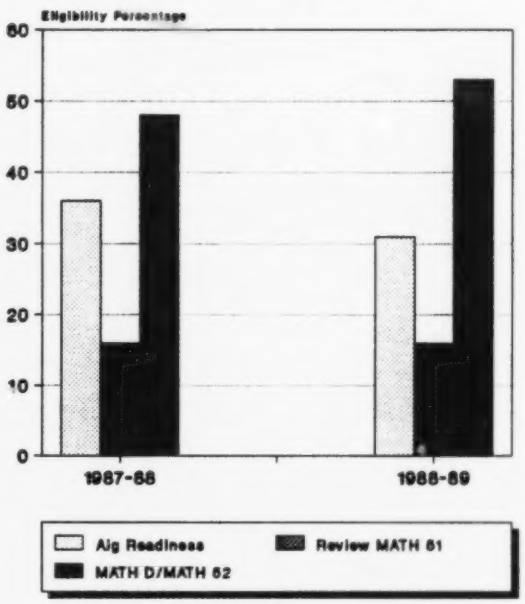
(Figure 6)

Math Diagnostic Test Placement Results

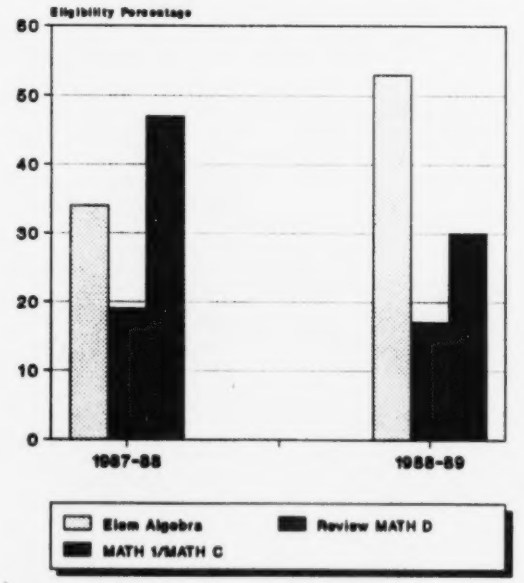
Algebra Readiness



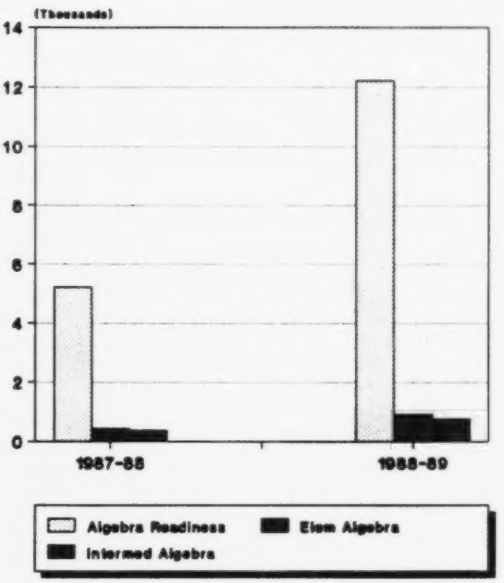
Elementary Algebra



Intermediate Algebra



Total Tested



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(HGS/math-alr.ele.all.all.*math4./7-89)

(Table 4)

MATHEMATICS DIAGNOSTIC TEST PLACEMENT RESULTS

	1987-88	%	1988-89	%	TOTAL	%
Algebra Readiness						
Total Tested	5,219		12,223		17,442	
Eligibility						
LERN 86	867	17%	2,191	18%	3,058	18%
MATH 50	1,500	29%	3,665	30%	5,165	30%
MATH 51	2,852	55%	6,367	52%	9,219	53%
Elementary Algebra						
Total Tested	429		915		1,344	
Eligibility						
Alg Readiness Test	153	36%	283	31%	435	32%
Review MATH 51	70	16%	146	16%	216	16%
MATH D/52	205	48%	486	53%	692	51%
Intermediate Algebra						
Total Tested	374		772		1,146	
Eligibility						
Elem Algebra Test	128	34%	407	53%	535	47%
Review MATH D	72	19%	133	17%	205	18%
MATH 1, MATH C	174	47%	232	30%	406	35%

RESEARCH QUESTION FOUR

What influence does successful English course completion have on student retention?

ANALYSIS SUMMARY

THE INFLUENCE OF SUCCESSFUL ENGLISH COURSE COMPLETION ON STUDENT RETENTION

Pilot Study by Sandra Starkey
Director of the Assessment and Placement Center

In Spring 1988, Sandra Starkey, Director of Assessment and Placement, began an evaluation study of the Asset Test and the CPT, Computerized Placement Test, for the MSAC English Department. The sample was drawn from students who were tested during the Fall 1987 registration period (July 15 to September 15) and who enrolled in an English class during the Fall 1987 semester. In an attempt to neutralize the effects of different teaching and grading practices, all students enrolled in an English section who took the CPT were selected; then an equal number of students who took the Asset during the same time frame were randomly selected. The final sample was 1,403.

LERN 76		124
ENGL 67		403
ENGL 68		678
ENGL 1A		198
	Total	1,403

The original purpose of the study was to evaluate two placement tests. However, when Starkey fully analyzed the data, the influence of successful English course completion on student retention was dramatic. Starkey analyzed the relationship between the grade received in the English class and the units and classes successfully completed during the Fall 1987 semester and the units enrolled for Spring 1988 semester. Successful students were those who received credit or a "C" grade or better. Unsuccessful students were those who withdrew or received a "D," "F," or no credit. For the students in this study, successful completion of English classes lead to success in other classes and re-enrollment the next semester. The majority of students in the study who withdrew or were

unsuccessful in English classes were unsuccessful in other classes as well. *Figures 8 through 10* illustrate Starkey's data.

Figure 7 shows that 90.8 percent of the students who received credit for LERN 76 in the Fall 1987 semester successfully completed two or more classes, and 76.3 percent of them re-enrolled in Spring 1988 for more than seven units. In contrast, 76.5 percent of the students who withdrew from LERN 76 did not complete any classes, and 67.6 percent of this group did not re-enroll for the Spring semester.

Figure 8 compares successfully completers of ENGL 67 with those who received no credit or withdrew. One hundred and sixty-eight students, 68.3 percent who successfully completed ENGL 67, also completed two or more classes with a "C" and above. The remaining 78 students, 31.7 percent, successfully completed one class. Of this group 144, 58.5 percent, re-enrolled in the Spring semester in more than seven units; 64 students, 26 percent, re-enrolled in less than six units; and only 38 students, 15.4 percent, did not re-enroll in the Spring semester. Of those who withdrew from ENGL 67, only 11.2 percent re-enrolled in the Spring semester in seven of more units. The majority, 71.4 percent, did not re-enroll.

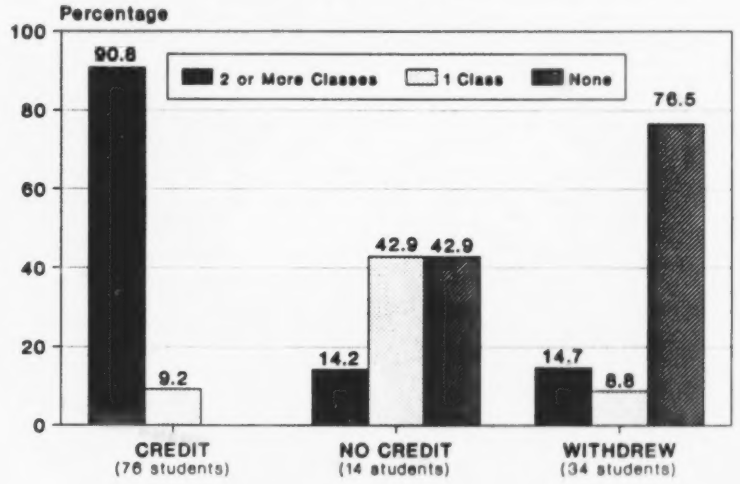
Figure 9 shows that 348 students, 85.9 percent, who successfully completed ENGL 68, also successfully completed two or more classes. The remaining 57, 14.1 percent, who received a "C" or above successfully completed one class. Over 75 percent of this group re-enrolled in more than seven units the following spring. Only 11.1 percent did not re-enroll. Of the 70.1 percent who withdrew from ENGL 68, 58.6 percent did not re-enroll the following spring.

Figure 10 shows that of the 94 who completed ENGL 1A with a "C" or above, 82.5 percent successfully completed two or more classes, 19 completed one class. Of this group, 69.3 percent re-enrolled the following spring in seven or more unit, 15.8 percent re-enrolled in less than six units, and 14.9 percent did not re-enroll. Of the 25 students who received "D's" and "F's" or incomplete in ENGL 1A, 10 successfully completed two or more classes, 6 completed one class, and 9 withdrew. Of the 59 who withdrew, 24 successfully completed two or more classes, 7 completed one class, and 28 withdrew. Of this group, 30 re-enrolled in seven or more units in the spring, 7 enrolled in less than six units, and 22 did not re-enroll.

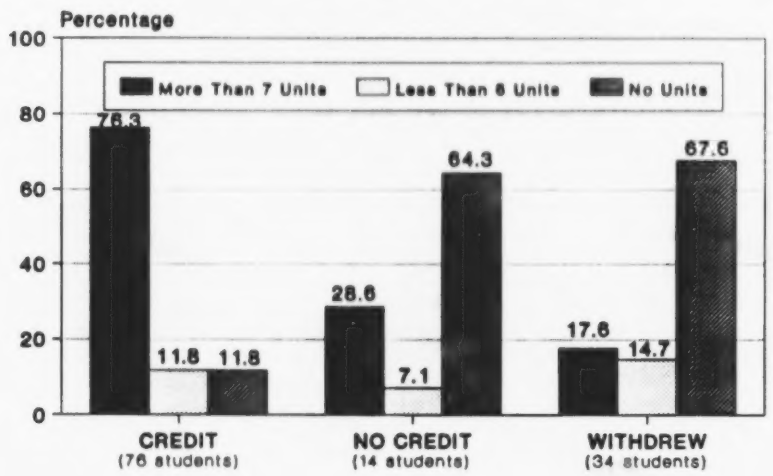
(Figure 7)

PILOT STUDY COMPARISON OF LERN 76

Fall 1987 Grade in LERN 76 and Number of Classes Successfully Completed



How Many Units Did Those Who Took LERN 76 in Fall 1987 Enroll in for Spring 1988?



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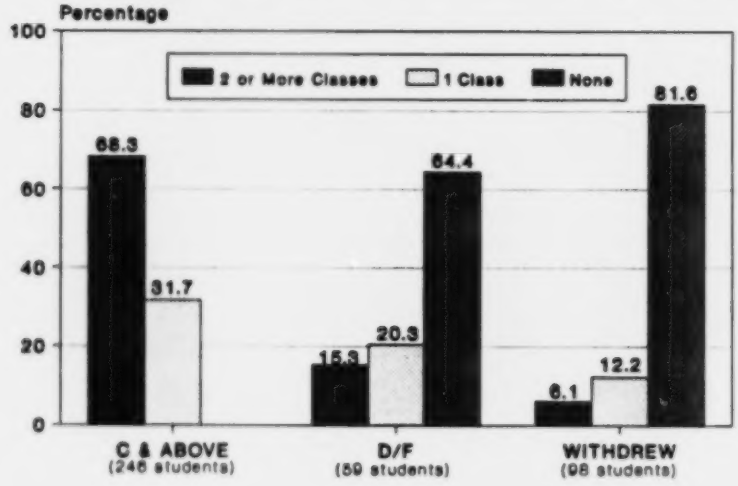
(HG3/lern76.+lern76b.+lern76ps./8-89)

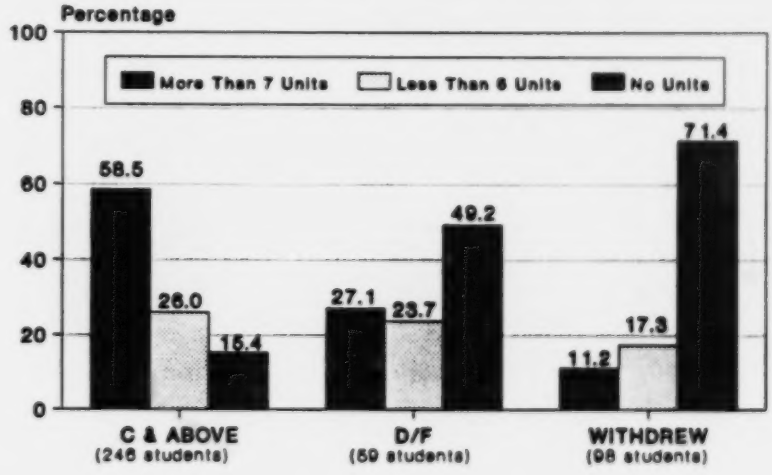
(Figure 8)

PILOT STUDY COMPARISON OF ENGL 67

Fall 1987 Grade in ENGL 67 and Number of Classes Successfully Completed



How Many Units Did Those Who Took ENGL 67 in Fall 1987 Enroll in for Spring 1988?



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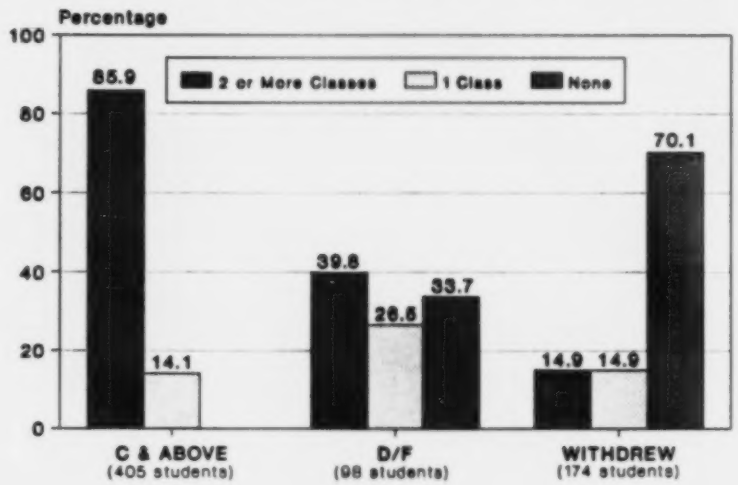
(HG3/engl67.+engl67b.+engl67ps./8-89)

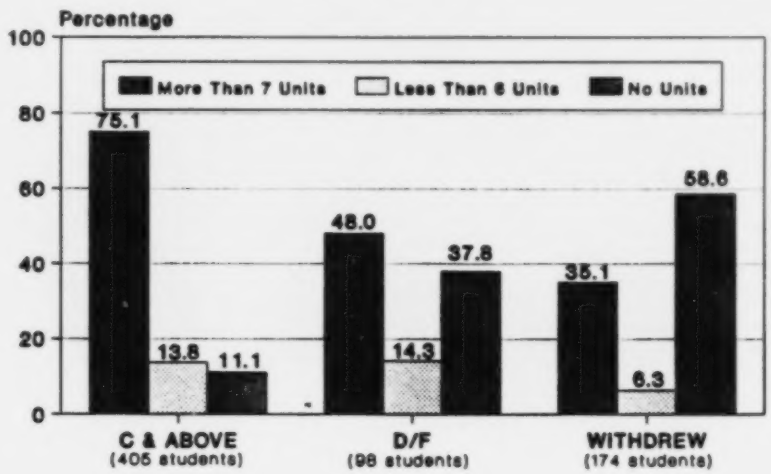
(Figure 9)

PILOT STUDY COMPARISON OF ENGL 68

Fall 1987 Grade in ENGL 68 and Number of Classes Successfully Completed



How Many Units Did Those Who Took ENGL 68 in Fall 1987 Enroll in for Spring 1988?



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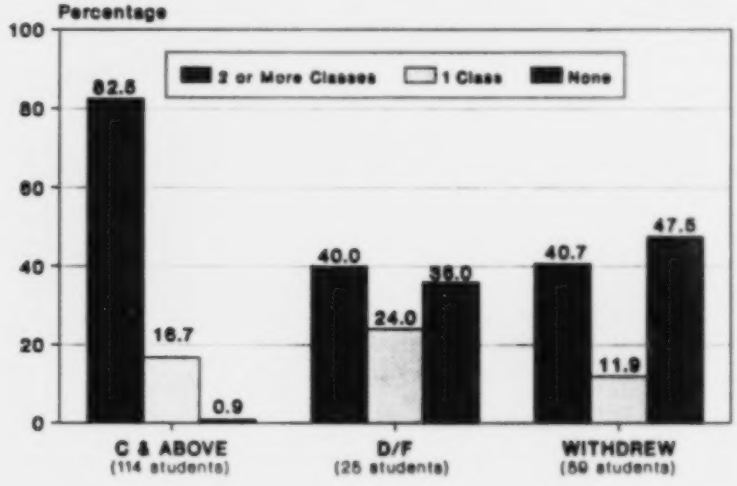
(HG3/engl68.*engl68b.*engl68ps./8-89)

28

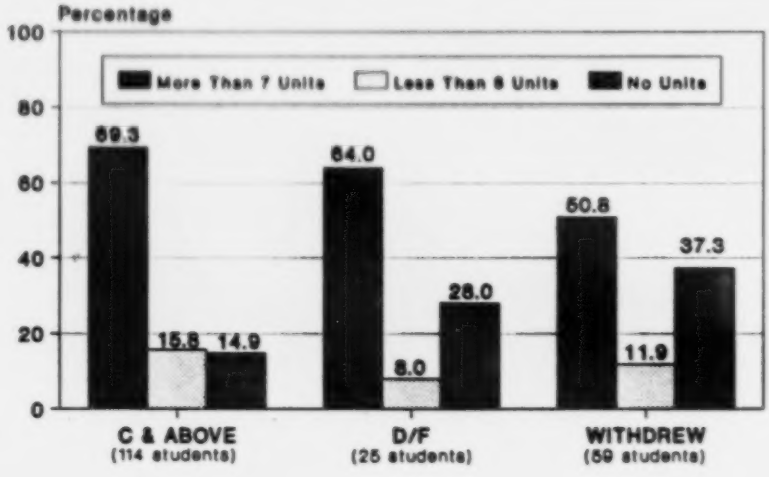
(Figure 10)

PILOT STUDY COMPARISON OF ENGL 1A

Fall 1987 Grade in ENGL 1A and Number of Classes Successfully Completed



How Many Units Did Those Who Took ENGL 1A in Fall 1987 Enroll in for Spring 1988?



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RESEARCH QUESTION FIVE

Has requiring students to be eligible for college course work adversely affected minority students?

ANALYSIS SUMMARY

Figures 11 through 18 illustrate semester comparisons by ethnic groups of all students who enrolled in course work where prerequisites became mandatory in the Fall of 1987. The analysis includes a comparison of average course GPA, retention, and the number of transfer courses taken. *Figure 11* compares GPA and retention between Fall 1986 and Fall 1987 in 246 courses where prerequisites were made mandatory in the Fall of 1987.

Figure 11

Asian Students: *Figure 11* shows the GPA for Asian students was higher in 41 percent of the courses, and the same in 9 percent in Fall 1987 than in Fall 1986. Retention was higher or the same in 49 percent of the courses. Forty percent of the courses taken by Asian students were transfer courses.

Black Students: GPA for Black students was higher in 71 percent of the courses, and the same in 7 percent. Retention was higher or the same in 86 percent of the courses. Seventy-four percent of the courses taken by Black students were transfer courses.

Hispanic Students: GPA for Hispanic students was higher in 70 percent of the courses, and the same in 6 percent. Retention was higher or the same in 67 percent of the courses. Fifty-six percent of the courses taken by Hispanic students were transfer courses.

Figure 12

Figure 12 compares the number of transfer courses taken by students in the Fall of 1987 with the number taken in the Fall of 1988. Asian students took 30 percent more. Black students took 7 percent less. Hispanic students took 8 percent more. The increase for All Students was 19 percent.

Figure 13

Figure 13 compares GPA and retention between Spring 1987 and Spring 1988 in 208 courses where prerequisites were made mandatory in Fall 1987.

Asian Students: *Figure 13* shows the GPA for Asian students was higher in 51 percent of the courses, and the same in 9 percent of the courses in Spring 1988 than in Spring 1987. Retention was higher in 39 percent, and the same in 30 percent. Seventy-five percent of the courses taken by Asian students were transfer courses.

Black Students: GPA for Black students was higher in 50 percent of the courses, and the same in 11 percent. Retention was higher in 46 percent, and the same in 15 percent. Sixty-nine percent of the courses taken by Black students were transfer courses.

Hispanic Students: GPA for Hispanic students was higher in 57 percent of the courses, and the same in 3 percent. Retention was higher or the same in 51 percent of the courses. Sixty-five percent of the courses taken by Hispanic students were transfer courses.

Figure 14

Figure 14 compares the number of transfer courses taken by students in the Spring of 1988 with the number taken in the Spring of 1989. Asian students took 4 percent more increasing from 75 to 79 percent. Black students increased 8 percent, from 69 percent to 77 percent, and Hispanic students increased 7 percent increasing from 64 percent to 71 percent.

Figure 15

Figure 15 compares GPA and retention between Fall 1988 and Fall 1987 in 205 courses where prerequisites were made mandatory in Fall 1987.

Asian Students: *Figure 15* shows the GPA for Asian students was higher in 48 percent of the courses, and the same in 11 percent. Retention was higher in 38 percent, and the same in 29 percent. Asian students took 70 percent transfer courses.

Black Students: GPA for Black students was higher in 45 percent of the courses, and the same in 10 percent. Retention was higher in 42 percent of the courses, and the same in 20 percent. Sixty-seven percent of the courses taken by Black students were transfer courses.

Hispanic Students: GPA for Hispanic students was higher in 40 percent of the courses, and the same in 8 percent. Retention was higher in 45 percent of the courses, and the same in 12 percent. Sixty-four percent of the courses taken by Hispanic students were transfer courses.

Figure 16

Figure 16 compares GPA and retention between Spring 1988 and Spring 1989 in 172 courses where prerequisites were made mandatory in Fall 1987.

Asian Students: *Figure 16* shows the GPA for Asian students was higher in 42 percent of the courses, and the same in 8 percent. Retention was higher in 34 percent, and the same in 24 percent. Asian students took 79 percent transfer courses.

Black Students: GPA for Black students was higher in 54 percent of the courses, and the same in 5 percent. Retention was higher in 44 percent of the courses, and the same in 10 percent. Black students took 77 percent transfer courses.

Hispanic Students: GPA was higher for Hispanic students in 47 percent of the courses, and the same in 6 percent. Retention was higher in 40 percent of the courses, and the same in 10 percent. Hispanic students took 73 percent transfer courses.

Figure 17 and Figure 18

Figure 17 and Figure 18 summarize the preceding data for Fall 1987, Fall 1988, Spring 1988, and Spring 1989. In the fall comparison, Black and Hispanic students took a higher percentage of transfer courses when compared to All Students. Their GPA and retention was higher than All Students.

Asian students took more transfer courses in 1988 and had the same or higher GPA and retention rate than All Students. In the spring comparison, the Black and Hispanic students again took a higher percentage of transfer courses than All Students. Their GPA and retention rate was higher than All Students. Asian students also took a higher percent of transfer courses. Their GPA and retention was higher than All Students in 1988, and their retention was higher than All Students in 1989.

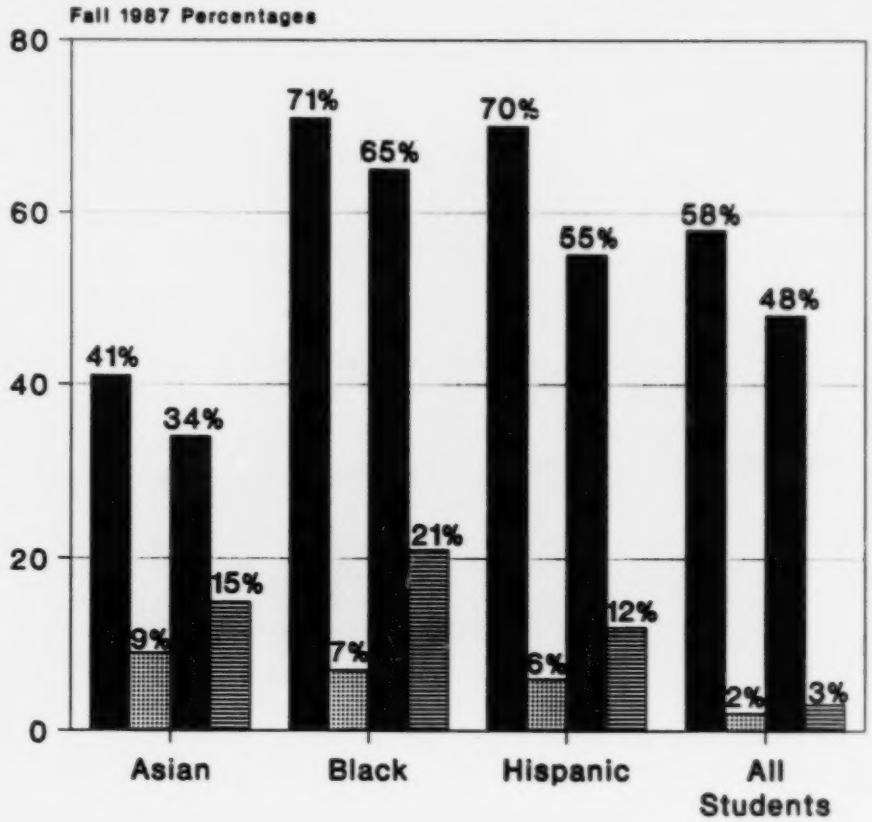
The preceding four semester data clearly does not show that mandatory prerequisites have adversely affected minority students.

Footnote: GPA is based upon the average GPA of all students who took the course. Number of students retained is defined by those students who received A-B-C-D-F, credit/no credit or incomplete. Number in the course is defined by students who received A-B-C-D-F, credit/no credit, incomplete, withdrew, withdrew failing. Retention rate is the percent of students retained divided by the number of students in the course.

[redacted]

(Figure 11)

Comparison of Fall 1987 to Fall 1986 GPA & Retention in 246 Courses Where Prerequisites Were Made Mandatory in Fall 1987



	Total Courses Taken Fall 1987	% Tfr. Courses
Asian	150	40%
Black	111	74%
Hispanic	188	56%
All Students	246	45%

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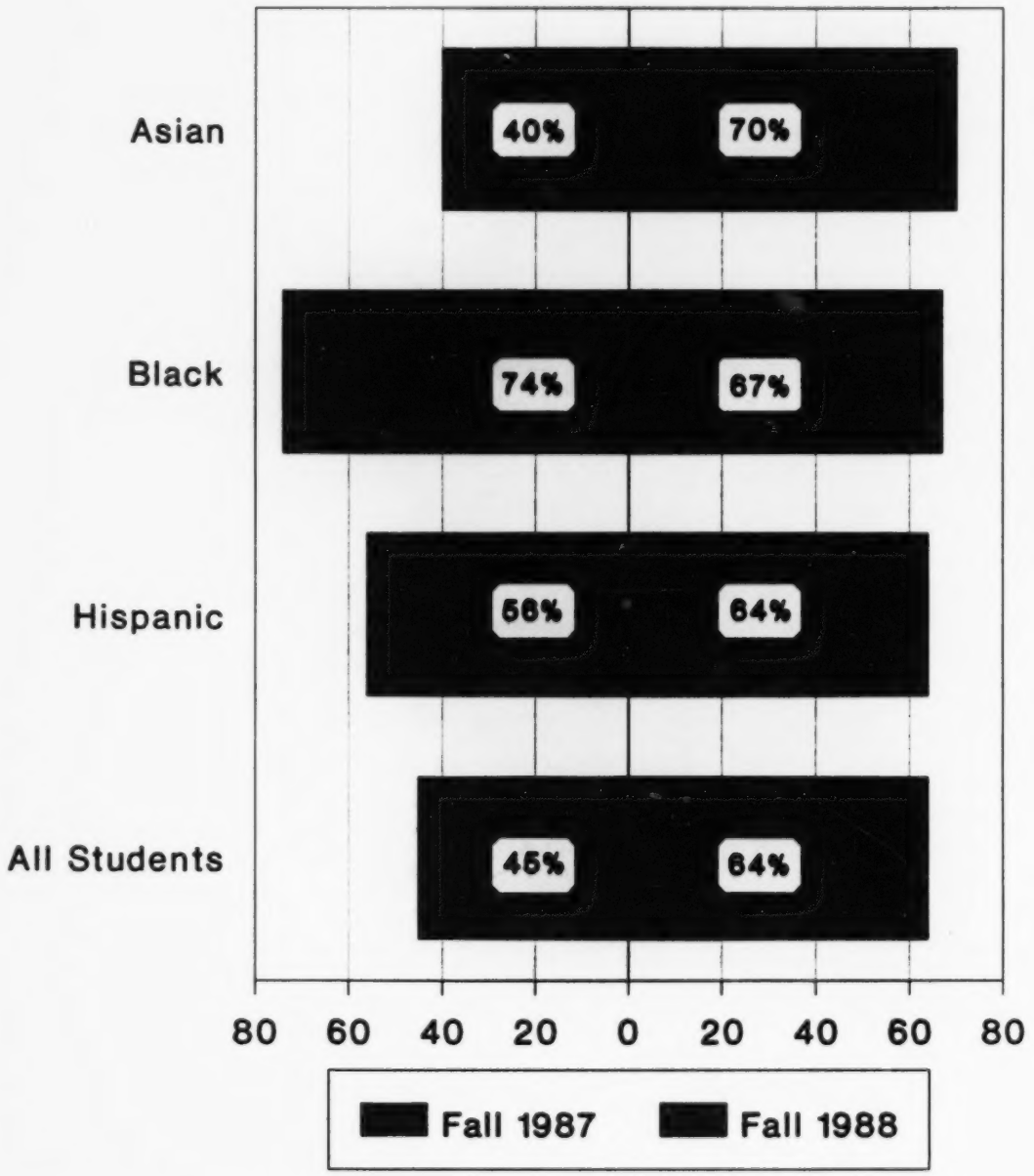
(Figure 12)

COMPARISON OF TRANSFER COURSES TAKEN
Fall 1987 and Fall 1988



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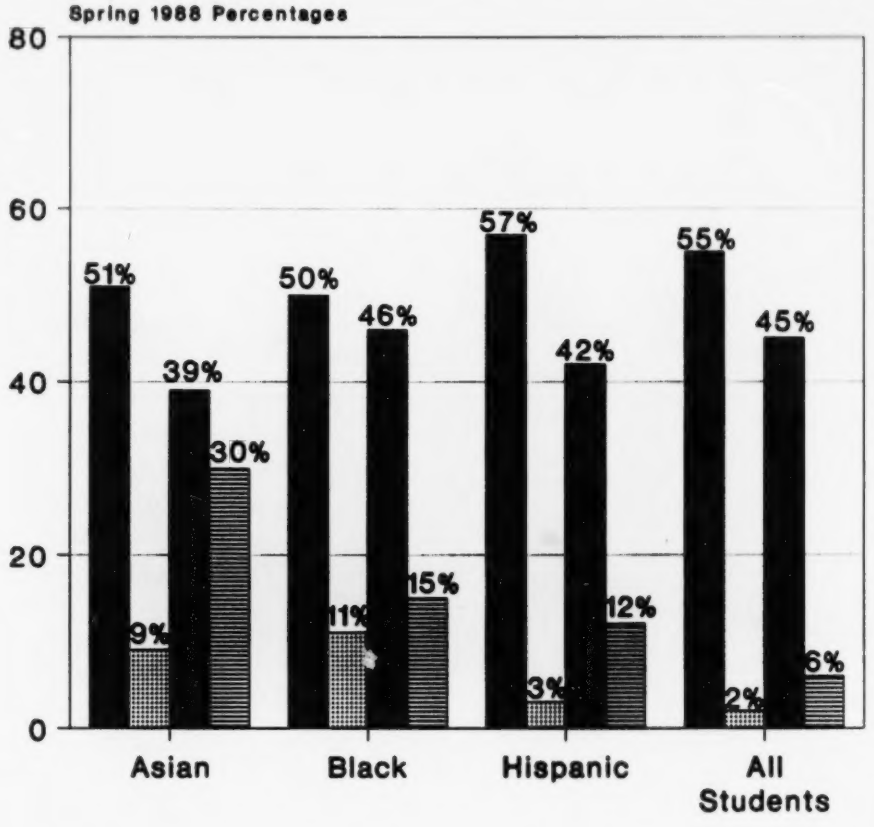
(Figure 13)

Comparison of Spring 1988 to Spring 1987 GPA & Retention in 208 Courses Where Prerequisites Were Made Mandatory in Fall 1987



	Total Courses Taken Spring 1988	% Tfr. Courses
Asian	125	75%
Black	124	69%
Hispanic	186	65%
All Students	208	64%

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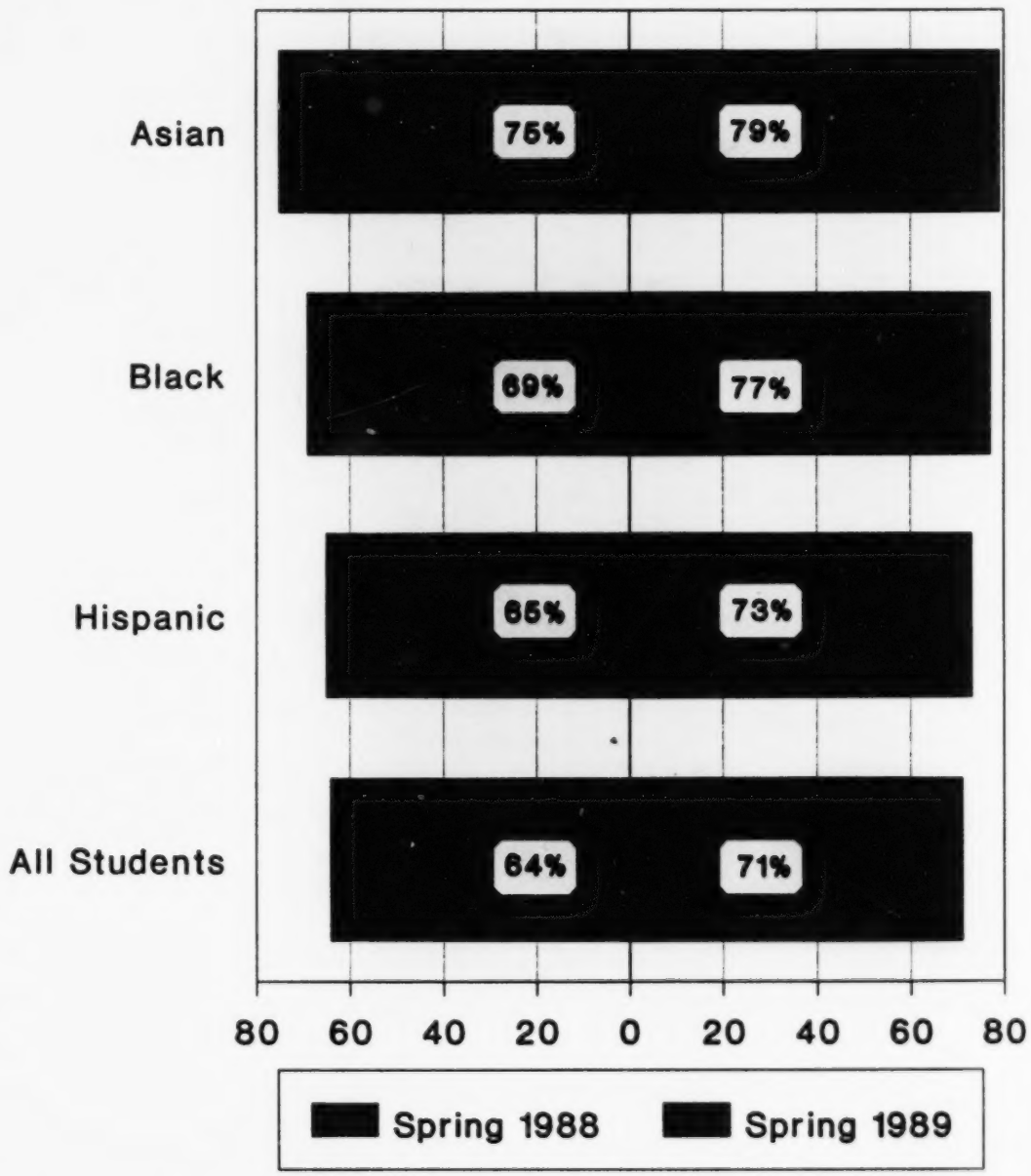
(Figure 14)

COMPARISON OF TRANSFER COURSES TAKEN
Spring 1988 and Spring 1989



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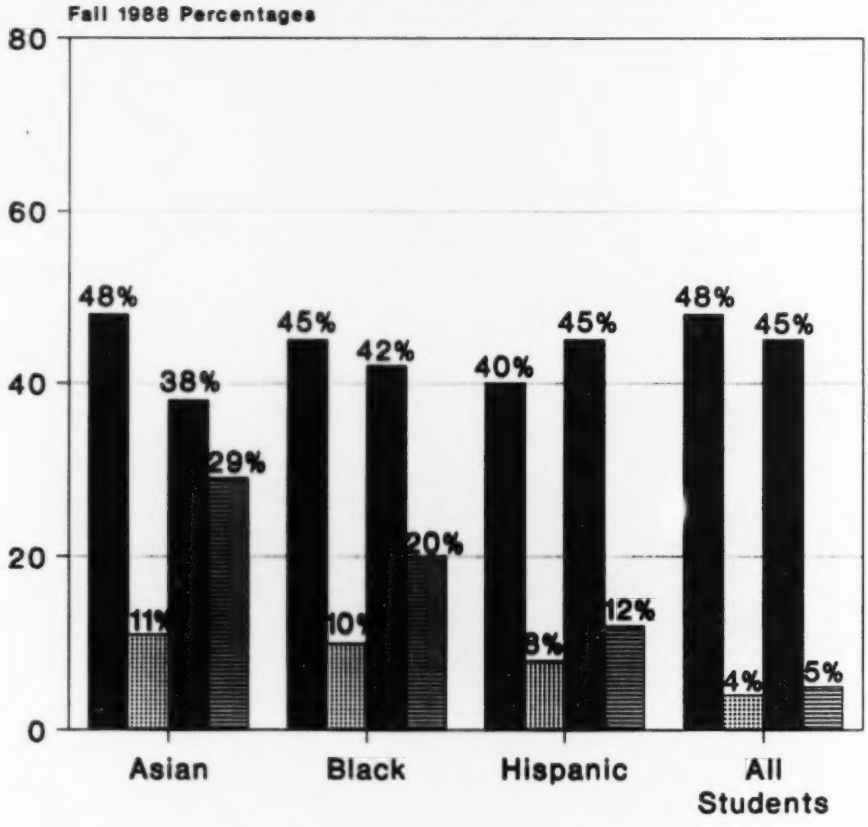
(HG3/tfrs8889./9-89)

(Figure 15)

Comparison of Fall 1988 to Fall 1987
GPA & Retention in 205 Courses Where Prerequisites Were Made Mandatory in Fall 1987



	Total Courses Taken Fall 1988	% Tfr. Courses
Asian	129	70%
Black	125	67%
Hispanic	187	64%
All Students	205	64%

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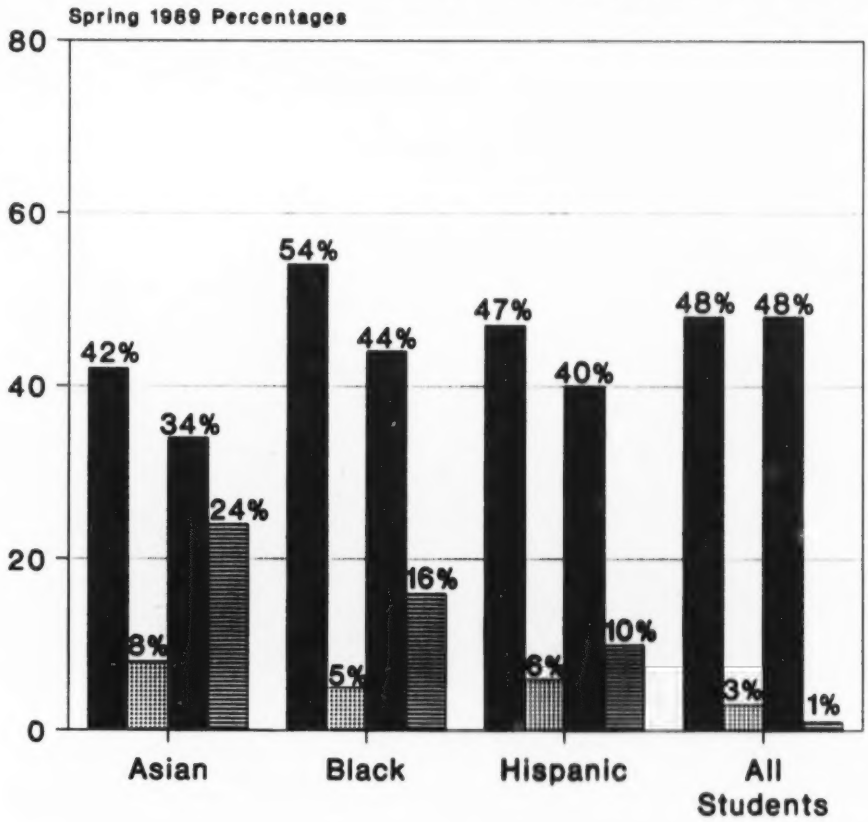
(HOS/gpacp188-gpaal188 /9-89)

(Figure 16)

Comparison of Spring 1989 to Spring 1988 GPA & Retention in 172 Courses Where Prerequisites Were Made Mandatory in Fall 1987



	Total Courses Taken Spring 1989	% Tfr. Courses
Asian	116	79%
Black	105	77%
Hispanic	163	73%
All Students	172	71%

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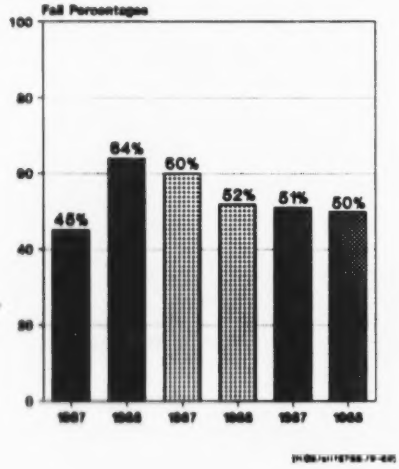
(HG3/gpscps89-gpsals89 /9-89)

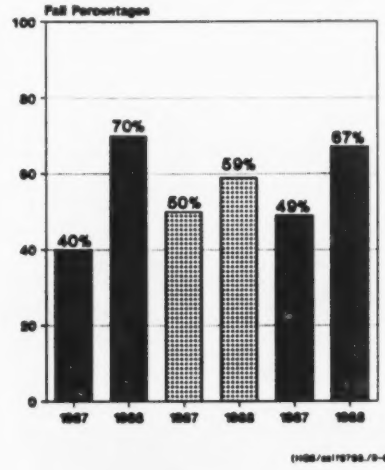
(Figure 17)

COMPARISON OF GPA & RETENTION IN CREDIT COURSES WHERE PREREQUISITES WERE MADE MANDATORY IN FALL 1987 FALL 1987 AND FALL 1988

All Students



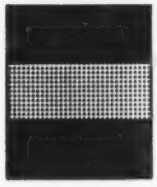
Asian



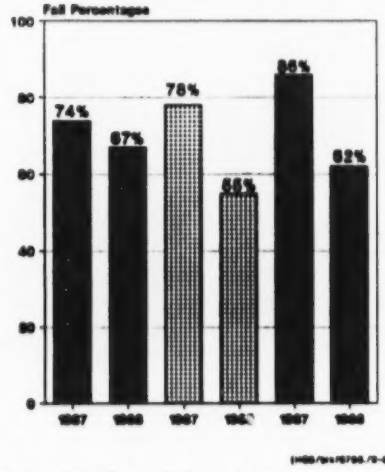
No. of Transfer Courses Taken

Same or Higher GPA Average

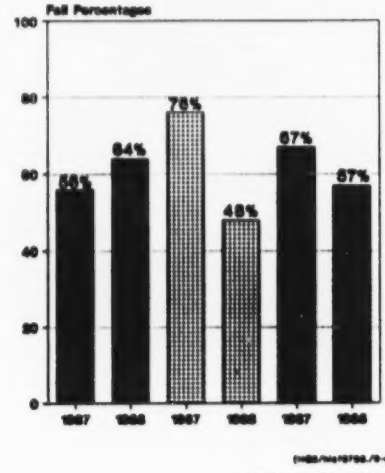
Same or Higher Retention Average



Black



Hispanic



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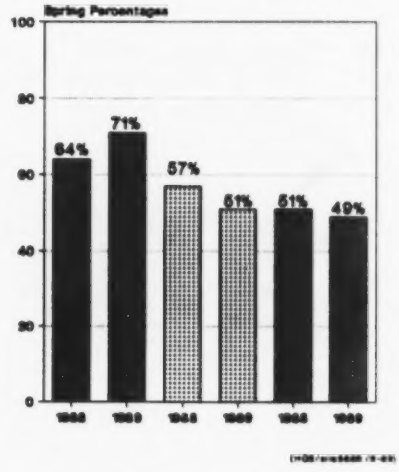
(HG3/ethi8788./9-89)

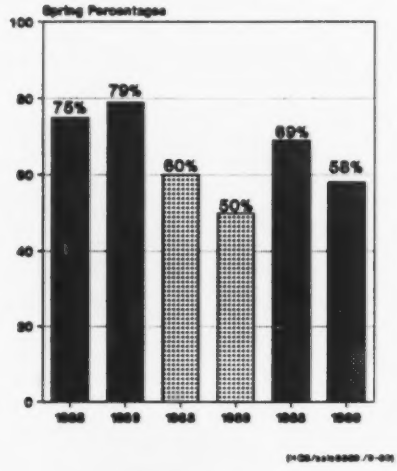
(Figure 18)

COMPARISON OF GPA & RETENTION IN CREDIT COURSES WHERE PREREQUISITES WERE MADE MANDATORY IN FALL 1987 SPRING 1988 AND SPRING 1989

All Students



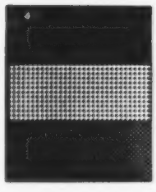
Asian



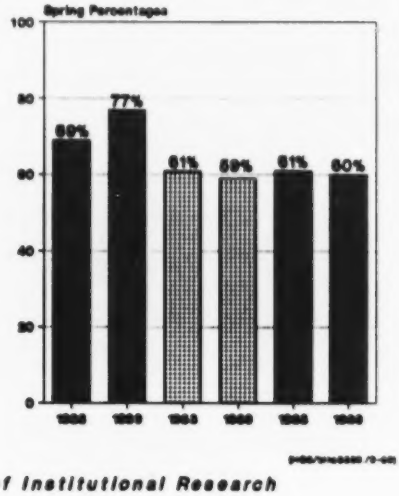
No. of Transfer Courses Taken

Same or Higher GPA Average

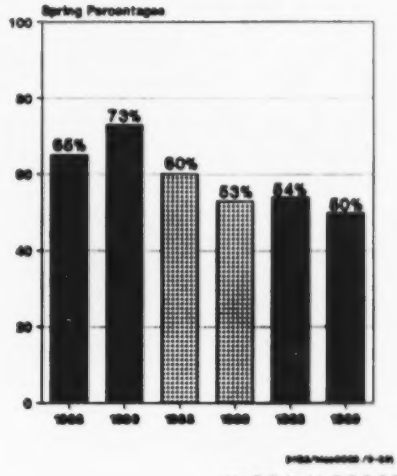
Same or Higher Retention Average



Black



Hispanic



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